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(54) **SOLUTIONS AQUEUSES SUPER-OXYGENEES ET METHODES
D'UTILISATION**

(54) **SUPER-OXYGENATED WATER SOLUTIONS AND METHODS
OF USE**

(57) The invention relates to medicinal solutions containing super-oxygenated water having a concentration of dissolved oxygen greater than 9.5 milligrams per litre and methods of their use in medical treatment and disinfection. Super-oxygenated water serves to deliver increased concentrations of oxygen intravenously, topically, or through ingestion to the bloodstream, body cells and tissue surfaces to which it is exposed. Bacteria exposed to super-oxygenated water are killed through the oxidation of the polysaccharide cell walls of the bacterial organism. Such solutions act as a disinfectant or preservative during transport of human transplant organs and tissue. The aqueous super-oxygenated solution can be frozen and used as packing ice to simultaneously: cool tissues; disinfect tissues; and provide oxygen through osmosis thereby inhibiting bacterial growth and slowing tissue deterioration. Topical application of super-oxygenated water solutions can increase the delivery of oxygen to exposed surfaces through osmosis. Topical application is useful for immersing or wrapping burned or wounded tissues or the entire body, and promoting faster healing of soft tissues, abrasions, sprains and burns. Topical application in mouth areas can disinfect and increase oxygen delivery in the treatment of gum disease, oral infections and dental infections. Ingestion of super-oxygenated solutions increases the delivery of oxygen to the blood and cells of the body increasing the blood oxygen content and elevating the partial pressure of oxygen in the blood. Intravenous injection of super-oxygenated water as a component of saline or Ringers solutions likewise increases the blood oxygen content and elevates the partial pressure of oxygen in the blood as well as enhancing the uptake of electrolytes, salts and minerals. Targeting specific areas of the body for application of super-oxygenated water is used in the treatment of anaerobic tumours and, heart attacks and brain disorders. Cells of anaerobic tumours are killed or have their rapid growth impeded through exposure to elevated oxygen concentrations. Brain disorder and heart attack effected tissues benefit from elevated oxygen concentrations on targeted exposure to super-oxygenated water solutions.



SUPER-OXYGENATED WATER SOLUTIONS AND METHODS OF USE

TECHNICAL FIELD

- 5 The invention relates to medicinal solutions containing super-oxygenated water having a concentration of dissolved oxygen greater than 9.5 milligrams per litre and methods of their use in medical treatment and disinfection.

BACKGROUND OF THE ART

- 10 For any living organism, water and oxygen are required for life.

Water is generally utilized as liquid form H_2O , although some primitive life forms can exist in frozen ice and near boiling water. Oxygen is generally utilized in the form of O_2 gas as a component of air, for example, or as dissolved oxygen in blood or other
15 bodily fluids.

Understandably therefore, water and oxygen gases are commonly used in medical treatments. For example, intravenous solutions, topical application solutions and ingested solutions generally are aqueous or water based. Pure oxygen or gases with
20 high oxygen concentrations are utilized in resuscitation, although of course, high concentration of oxygen gas is accompanied by the risk of accidental explosion.

Following the recent invention of methods of producing super-oxygenated water with previously unreachable high concentrations of dissolved oxygen greater than 9.5
25 milligrams per litre, the present invention relates to the use of such super-oxygenated water in the preservation of tissues and medicinal treatment of living organisms, particularly humans.

Prior to this recent invention, the concentration of dissolved oxygen in water
30 commonly attained a maximum of 3-4 milligrams per litre. The introduction of super-oxygenated water production methods allows dissolved oxygen concentrations of

greater than 9.5 milligrams per litre and has led to the present invention wherein such water can be utilized for a number of disinfecting and medicinal purposes.

DISCLOSURE OF THE INVENTION

- 5 The invention provides various medicinal solutions containing super-oxygenated water having a concentration of dissolved oxygen greater than 9.5 milligrams per litre and methods of their use in medical treatment and disinfection.

10 Super-oxygenated water serves to deliver increased concentrations of oxygen intravenously, topically, or through ingestion to the bloodstream, body cells and tissue surfaces to which it is exposed.

15 Bacteria exposed to super-oxygenated water are killed through the oxidation of the polysaccharide cell walls of the bacterial organism. Such solutions act as a disinfectant or preservative during transport of human transplant organs and tissue. The aqueous super-oxygenated solution can be frozen and used as packing ice to simultaneously: cool tissues; disinfect tissues; and provide oxygen through osmosis thereby inhibiting bacterial growth and slowing tissue deterioration.

20 Topical application of super-oxygenated water solutions can increase the delivery of oxygen to exposed surfaces through osmosis. Topical application is useful for immersing or wrapping burned or wounded tissues or the entire body, and promoting faster healing of soft tissues, abrasions, sprains and burns. Topical application in mouth areas can disinfect and increase oxygen delivery in the treatment of gum
25 disease, oral infections and dental infections.

Ingestion of super-oxygenated solutions increases the delivery of oxygen to the blood and cells of the body increasing the blood oxygen content and elevating the partial pressure of oxygen in the blood.

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Intravenous injection of super-oxygenated water as a component of saline or Ringers

solutions likewise increases the blood oxygen content and elevates the partial pressure of oxygen in the blood as well as enhancing the uptake of electrolytes, salts and minerals.

- 5 Targeting specific areas of the body for application of super-oxygenated water is used in the treatment of anaerobic tumours and, heart attacks and brain disorders. Cells of anaerobic tumours are killed or have their rapid growth impeded through exposure to elevated oxygen concentrations. Brain disorder and heart attack effected tissues benefit from elevated oxygen concentrations on targeted exposure to super-
10 oxygenated water solutions.

Specifically, the invention includes the following embodiments:

- 15 the use of super-oxygenated water containing a concentration of dissolved oxygen greater than 9.5 milligrams per litre, for the manufacture of a medicinal solution selected from the group consisting of: intravenous solution; electrolytic solution; saline solution; topical burn solution; topical skin treatment solution; oral rinse treatment solution; dental rinse treatment solution; ingestible blood oxygen content elevating solutions; ingestible blood
20 oxygen partial pressure elevating solutions; bactericide; virus killing solution; anaerobic tumour treatment solution; physical injury immersion treatment solution; and brain tissue treatment solution;

- 25 the use of super-oxygenated water containing a concentration of dissolved oxygen greater than 9.5 milligrams per litre, for the manufacture of a preservative selected from the group consisting of: fluid preservative; ice used as a cooling preservative; live human organ preservative; and live human tissue preservative;

- 30 a medicinal solution containing super-oxygenated water having a concentration of dissolved oxygen greater than 9.5 milligrams per litre, the

5 product selected from the group consisting of: intravenous solution; electrolytic solution; saline solution; topical burn solution; topical skin treatment solution; oral rinse treatment solution; dental rinse treatment solution; ingestible blood oxygen content elevating solutions; ingestible blood oxygen partial pressure elevating solutions; bactericide; virus killing solution; anaerobic tumour treatment solution; physical injury immersion treatment solution; and brain tissue treatment solution;

10 a preservative containing super-oxygenated water having a concentration of dissolved oxygen greater than 9.5 milligrams per litre, the preservative selected from the group consisting of: fluid preservative; ice for use as a cooling preservative; live human organ preservative; and live human tissue preservative;

15 a method of preserving human tissue by immersing the tissue in super-oxygenated water having a concentration of dissolved oxygen greater than 9.5 milligrams per litre, and by packing the tissue with frozen super-oxygenated water having a concentration of dissolved oxygen greater than 9.5 milligrams per litre;

20 a method of elevating the oxygen concentration in a live human bloodstream and cells by intravenous injection, topical application, and ingestion of super-oxygenated water having a concentration of dissolved oxygen greater than 9.5 milligrams per litre;

25 a method of disinfecting living tissue by topical application of super-oxygenated water having a concentration of dissolved oxygen greater than 9.5 milligrams per litre;

30 a method of killing infectious organisms in a bloodstream and cells through intravenous contact with, and through ingestion of super-oxygenated water

having a concentration of dissolved oxygen greater than 9.5 milligrams per litre.

Further details of the invention and its advantages will be apparent from the detailed
5 description included below.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

Super-oxygenated water can be used to deliver increased concentrations of oxygen to living body cells and living tissue surfaces including tissues which are in transport for
10 transplantation purposes. Super-oxygenated water can be delivered intravenously, applied topically, or can be ingested to increase the oxygen available in the bloodstream, body cells or surface of tissues.

In addition, the super-oxygenated water can be used as a disinfectant or preservative
15 for many tissues or organic products which are subject to deterioration. The polysaccharide cell walls of bacterial organisms are oxidated when exposed to super-oxygenated water. As a result, bacteria exposed to such water is killed through oxidization. This method of killing bacteria is novel and has very wide application, especially in the medical field. For example, in the current transport of human
20 transplant organs and tissue, these organs and tissue are usually packed in ice, which permits transport within a number of hours before the organs and tissue deteriorate to the extent that they cannot be used. Super-oxygenated water can be frozen and used as packing to simultaneously cool the tissues, disinfect them and provide additional oxygen through osmosis to inhibit bacteria growth and slow the deterioration of the
25 tissue and organs.

In living organisms as well, topical application of super-oxygenated water solutions can increase the delivery of oxygen to exposed surfaces through osmosis. External treatment of burns currently involves immersing burn tissues in medicated water
30 which promotes healing. By immersing burned tissues in super-oxygenated water,

harmful bacteria are killed as mentioned above, and in addition, rapid healing is enhanced by provision of additional oxygen to the affected area.

5 The blood oxygen levels can be increased as well, by surface immersion of the body or parts of the body in a vessel containing super-oxygenated water since the oxygen dissolved in the super-oxygenated water passes through the cell walls into the blood via osmosis. Skin disorders, injury to soft tissues, abrasions, sprains and burns can also be treated by immersion of the effected area or bathing in super-oxygenated water, in addition to wrapping the skin area in bandages soaked in super-oxygenated
10 water. Gum disease, oral infections and dental infections can be treated as well by topical application, or rinsing the mouth areas with super-oxygenated water which disinfects and increases oxygen delivery to the adjacent areas.

15 Ingestion of super-oxygenated solutions increases the delivery of oxygen to the blood and cells, thereby increasing the blood oxygen content and elevating the partial pressure of oxygen in the blood. Intravenous injection of super-oxygenated water as a component or saline or ringer solutions likewise increases the blood oxygen content and elevates the partial pressure of oxygen in the blood, as well as enhancing the uptake of electrolytes, salts and minerals.

20 Many diseases and malfunctions of organs or deterioration of body tissues can be attributed to the lack of oxygen. Such maladies can be treated either with ingestion or intravenous injection of super-oxygenated water containing high concentrations of oxygen. Such maladies include heart attack damaged tissues, certain brain disorders
25 and problems associated with poor circulation, such as coronary diseases, arthritis, etc.

Certain maladies effect only specific areas of the body and these can be treated targeting these specific areas for application of super-oxygenated water. For example, cells of anaerobic tumors are killed or have their rapid growth impeded through
30 exposure to elevated oxygen concentrations delivered in the form of super-oxygenated water. Brain disorders and heart attack effected tissues as well, benefit from elevated

oxygen concentrations on targeted exposure to super-oxygenated water solutions delivered either through ingestion or intravenous injection.

Although the above description and accompanying drawings relate to a specific
5 preferred embodiment as presently contemplated by the inventor, it will be understood
that the invention in its broad aspect includes equivalents of the elements described.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. The use of super-oxygenated water containing a concentration of dissolved
5 oxygen greater than 9.5 milligrams per litre, for the manufacture of a medicinal
solution selected from the group consisting of: intravenous solution; electrolytic
solution; saline solution; topical burn solution; topical skin treatment solution; oral
rinse treatment solution; dental rinse treatment solution; ingestible blood oxygen
content elevating solutions; ingestible blood oxygen partial pressure elevating
10 solutions; bactericide; virus killing solution; anaerobic tumour treatment solution;
physical injury immersion treatment solution; and brain tissue treatment solution.
2. The use of super-oxygenated water containing a concentration of dissolved
oxygen greater than 9.5 milligrams per litre, for the manufacture of a preservative
15 selected from the group consisting of: fluid preservative; ice used as a cooling
preservative; live human organ preservative; and live human tissue preservative.
3. A medicinal solution containing super-oxygenated water having a
concentration of dissolved oxygen greater than 9.5 milligrams per litre, the product
20 selected from the group consisting of: intravenous solution; electrolytic solution;
saline solution; topical burn solution; topical skin treatment solution; oral rinse
treatment solution; dental rinse treatment solution; ingestible blood oxygen content
elevating solutions; ingestible blood oxygen partial pressure elevating solutions;
bactericide; virus killing solution; anaerobic tumour treatment solution; physical
25 injury immersion treatment solution; and brain tissue treatment solution.
4. A preservative containing super-oxygenated water having a concentration of
dissolved oxygen greater than 9.5 milligrams per litre, the preservative selected from
the group consisting of: fluid preservative; ice for use as a cooling preservative; live
30 human organ preservative; and live human tissue preservative.

5. A method of preserving human tissue by immersing the tissue in super-oxygenated water having a concentration of dissolved oxygen greater than 9.5 milligrams per litre.
- 5 6. A method of preserving human tissue by packing the tissue with frozen super-oxygenated water having a concentration of dissolved oxygen greater than 9.5 milligrams per litre.
7. A method of elevating the oxygen concentration in a live human bloodstream
10 and cells by intravenous injection of super-oxygenated water having a concentration of dissolved oxygen greater than 9.5 milligrams per litre.
8. A method of elevating the oxygen concentration in live human bloodstream
15 and cells by topical application of super-oxygenated water having a concentration of dissolved oxygen greater than 9.5 milligrams per litre.
9. A method of elevating the oxygen concentration in live human bloodstream
20 and cells by ingestion of super-oxygenated water having a concentration of dissolved oxygen greater than 9.5 milligrams per litre.
10. A method of disinfecting living tissue by topical application of super-oxygenated water having a concentration of dissolved oxygen greater than 9.5 milligrams per litre.
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11. A method of killing infectious organisms in a bloodstream and cells through intravenous contact with super-oxygenated water having a concentration of dissolved oxygen greater than 9.5 milligrams per litre.
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12. A method of killing infectious organisms in a bloodstream and cells through

ingestion of super-oxygenated water having a concentration of dissolved oxygen greater than 9.5 milligrams per litre.

ABSTRACT

The invention relates to medicinal solutions containing super-oxygenated water having a concentration of dissolved oxygen greater than 9.5 milligrams per litre and methods of their use in medical treatment and disinfection. Super-oxygenated water serves to deliver increased concentrations of oxygen intravenously, topically, or through ingestion to the bloodstream, body cells and tissue surfaces to which it is exposed. Bacteria exposed to super-oxygenated water are killed through the oxidation of the polysaccharide cell walls of the bacterial organism. Such solutions act as a disinfectant or preservative during transport of human transplant organs and tissue.

The aqueous super-oxygenated solution can be frozen and used as packing ice to simultaneously: cool tissues; disinfect tissues; and provide oxygen through osmosis thereby inhibiting bacterial growth and slowing tissue deterioration. Topical application of super-oxygenated water solutions can increase the delivery of oxygen to exposed surfaces through osmosis. Topical application is useful for immersing or wrapping burned or wounded tissues or the entire body, and promoting faster healing of soft tissues, abrasions, sprains and burns. Topical application in mouth areas can disinfect and increase oxygen delivery in the treatment of gum disease, oral infections and dental infections. Ingestion of super-oxygenated solutions increases the delivery of oxygen to the blood and cells of the body increasing the blood oxygen content and elevating the partial pressure of oxygen in the blood. Intravenous injection of super-oxygenated water as a component of saline or Ringers solutions likewise increases the blood oxygen content and elevates the partial pressure of oxygen in the blood as well as enhancing the uptake of electrolytes, salts and minerals. Targeting specific areas of the body for application of super-oxygenated water is used in the treatment of anaerobic tumours and, heart attacks and brain disorders. Cells of anaerobic tumours are killed or have their rapid growth impeded through exposure to elevated oxygen concentrations. Brain disorder and heart attack effected tissues benefit from elevated oxygen concentrations on targeted exposure to super-oxygenated water solutions.